nevertheless does not admit of being exactly determined, let the combustible value of the carbon monoxide as well as the utilisable available heat of both gases be neglected, and let it be taken that there are removed from the furnace

By the carbonic acid from 1 kilogramme limestone, ISO calories . (50) ,, cavhou monoxide from 1 kilogramme 0 . 800 ,, . (51)

Further, let it be assumed that the entire materials are put into the furnace at a temperature of 0°, thereby fixing the first two starting points for the heat balance-sheet.

The determination of the energy changes accompanying the reactions presents great difficulties, and one can only obtain approximate values, since the bases at hand are still very unreliable.

In the decomposition of limestone heat is absorbed, and this amounts per unit limestone to 425 calories . . . (52).

Then the materials, Si, Mn, P and C must be set free from their combination with iron, whereby likewise heat is absorbed. According to K. P. Campbell (JowmalLti.L, May, 1901) there is necessary for this per kilogramme 0, 705 calories; for 1 kilogramme Si, 981 calories; for P and Mn there appear to be no data at hand. One cannot disregard these, and it appears thus to answer the purpose also to neglect the heat of combination -of carbon and Si with iron.

Further, tho reducing agents and likewise iron become oxidised, and horoby quite considerable quantities of heat are set free.

Calorics.

1 kilogramme. Si #IVGH on its <
xidisati*
Mu
(I
Fo
n to Si< >a[+7,MO'
MnO
(X) Fo<)
f 1,784
+2,387 [+.!, 350
(53)

Finally, the resulting products of oxidisation go into combination, whereby again heat is developed. For these there has been given:

1 kilogramme Si()a with Fo(> to form FoSiO,, CF. Finclier, St. u. E., 1903, p. 7o)~f)H:j calorioH (F<j()+Si(),j::.Fo8i()a+[3o] calorion).

AgairiHt this, Pawloff (Communications to the St. Petersburg Polytechnic Institute, 19Q(>, Vol. VI.) gives the formula

FeO + SiOa=FeSiOa [+ 10*08 calories].